RS780 Series

RS780G+SB700 Chipset

Socket AM2 Processor Mainboard

User's Manual

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Chapter 1 Introduction

1.1 Package Checklist

Thank you for choosing our product.
Please check the following packing and accessories, if there is any broken or part missing, please contact with your franchiser.

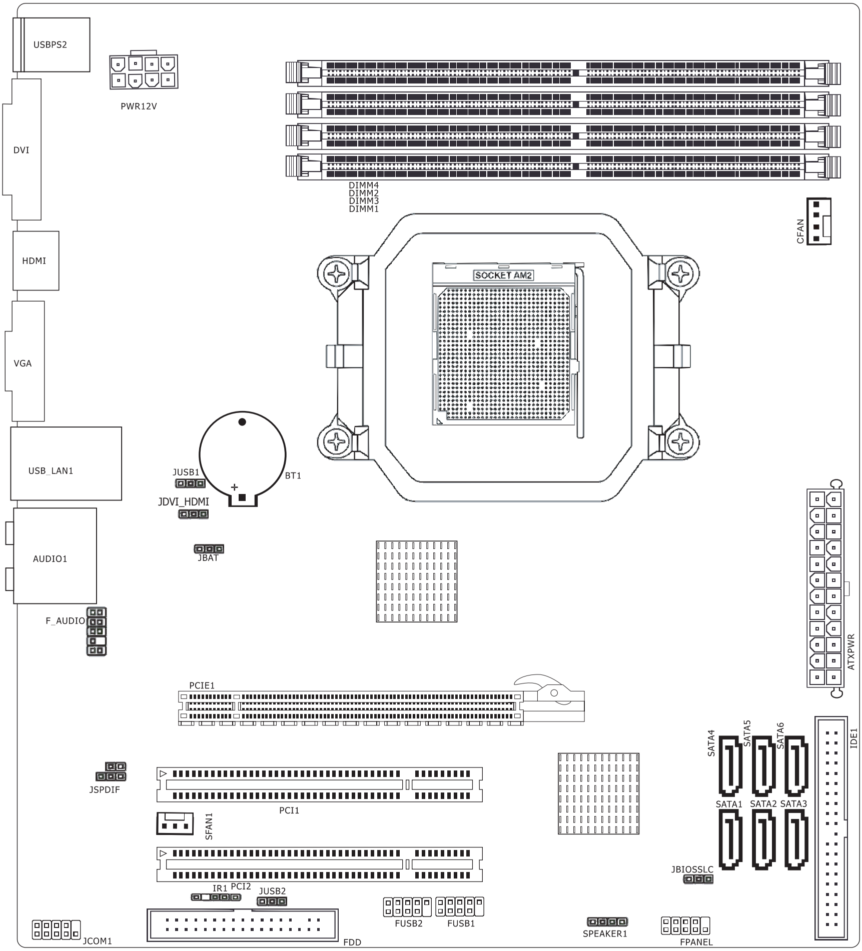
- HDD Cable X 1
- Rear I/O Panel X 1
- User's Manual X 1
- Driver/Utility CD X 1
- Serial ATA Power Cable X 1
- Serial ATA Signal Cable X 1

The items listed above are for reference only, and are subject to change without notice.

1.2 Specifications (for JW-RS780UVD-AM2+)

CPU	-Supports AMD® Socket AM2+/ AM2 processors: -AMD Phenom™ / Athlon™ 64 FX / Athlon™ 64 X2 Dual Core/ Athlon™ 64 / Sempron™ -Hyper Transport Bus 5200/2000 MT/s (HT 3.0/1.0) -Note: 125W TDP processors are not supported by this board
Main Chipset	- North Bridge: AMD® 780G - South Bridge: AMD® SB700
Main Memory	- Supports 4 x 1.8V DDR2 DIMM sockets supporting up to 8 GB of system memory - Supports Dual channel memory architecture - Supports for DDR2 1066/800/667 MHz memory modules - Supports ECC Memory(CPU dependent)
BIOS	- 1 x 8Mbit AMI BIOS,supports Plug&Play - Supports BIOS ROM Write Protect - Supports Advanced Power Management ACPI,STR - Supports 1x SYS FAN, 1x CPU FAN - CPU temperature, Fan speed, System Voltage monitoring
I/O Chipset	- Winbond W83627
Integrated Ports	- 1 x PS/2 Keyboard port - 1 x DVI port - 1 x Debug LED (Optional) - 1 x HDMI port - 1 x VGA port - 1 x RJ45 port - 8 x USB 2.0 ports, USB 1.1 is compliant - 6 x SATA ports , Maximum Speed to 3GB/s,support for SATA RAID 0, RAID 1 and RAID 0+1 - 1 x IDE connector, 2 x IDE devices could be connected, Supports ATA 133/100/66/33 - 1 x Floppy Drive, supports 360K/720K/1.2M/1.44M/2.88M floppy disk
Sound	- Supports Realtek® ALC 883/888 codec - Supports 8 channel HD Audio,24 bit Audio Codec - High Definition Audio - Supports for S/PDIF In/Out (via header) - Front Panel Jumper, provides stereo MIC port on front panel
Onboard LAN	- Onboard Marvell® 88E8056 PCIe LAN(10/100/1000 Mbit)
Expansion Slots	- 1 x PCI Express x16 slot(PCI Express 2.0) - 2 x PCI slots - Support PCI Bus interface v2.2 compliant
OS Supports	- Microsoft Windows Vista/XP
Form Factor	- Mirco ATX (245*225 mm)
Remark	-1066 MHz memory support is dependent on the CPU being used -ECC memory support is dependent on the CPU being used

1.3 Mainboard Layout (PCB Layout for JW-RS780UVD-AM2+)

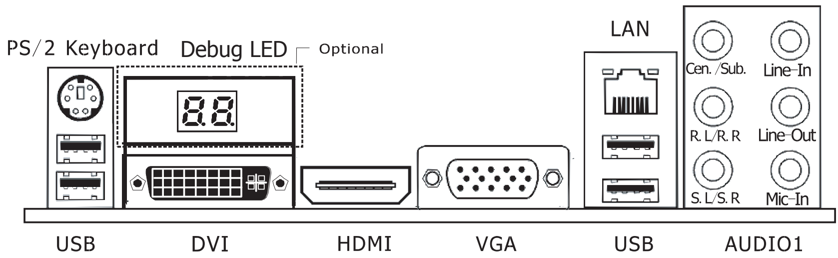


(This picture is only for reference)

1.4 Connecting Rear Panel I/O Devices

The rear I/O part of these mainboard provides the following I/O ports:

I/O Panel-for JW-RS780UVD-AM2+



(This picture is only for reference)

- PS/2 Mouse: Connects to PS/2 mouse.
- Debug LED: Display error code.
- DVI: Connects to monitor input.
- HDMI:Connects to multimedia devices of HDMI protocol.
- VGA: Connects to monitor input.
- LAN: Connects to Local Area Network.
- USB: Connects to USB devices such as scanner, digital speakers, monitor, mouse, keyboard, hub, digital camera, joystick etc.

- AUDIO1:
  Cen./Sub. (Center / Subwoofer): Connects to the center and subwoofer channel in the 7.1 channel audio system.
  R.L./R.R. (Rear Left / Rear Right): Connects to the rear left and rear right channel in the 7.1 channel audio system.
  S.L./S.R. (Surround Left / Surround Right): Connects to the surround left and surround right channel in the 7.1 channel audio system.
  Line-In: Connects to the line out from external audio sources.
  Line-Out: Connects to the front left and front right channel in the 7.1-channel or regular 2-channel audio system.
  Mic-In: Connects to the plug from external microphone.

Chapter 2 Hardware Setup

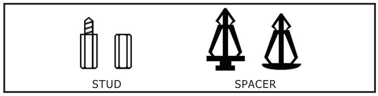
2.1 Choosing a Computer Chassis

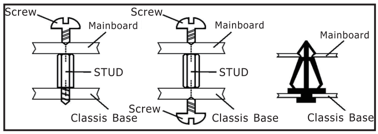
The mainboard and its component layouts illustrated in this chapter were based mainly on model "JW-RS780UVD-AM2+", unless specifically stated.

- Choose a chassis big enough to install this mainboard.
- As some features for this mainboard are implemented by cabling connectors on the mainboard to indicators and switches or buttons on the chassis, make sure your chassis supports all the features required.
- If there is possibility of adopting some more hard drives, make sure your chassis has sufficient power and space for them.
- Most chassis have alternatives for I/O shield located at the rear panel. Make sure the I/O shield of the chassis matches the I/O port configuration of this mainboard. You can find an I/O shield specifically designed for this mainboard in its package.

2.2 Installing Mainboard

Most computer chassis have a base with many mounting holes to allow the mainboard to be securely attached, and at the same time, prevent the system from short circuits. There are two ways to attach the mainboard to the chassis base: (1) with studs, or (2) with spacers. Basically, the best way to attach the board is with studs. Only if you are unable to do this should you attach the board with spacers. Line up the holes on the board with the mounting holes on the chassis. If the holes line up and there are screw holes, you can attach the board with studs. If the holes line up and there are only slots, you can only attach with spacers. Take the tip of the spacers and insert them into the slots. After doing this to all the slots, you can slide the board into position aligned with slots. After the board has been positioned, check to make sure everything is OK before putting the chassis back on.





Always power off the computer and unplug the AC power cord before adding or removing any peripheral or component. Failing to do so may cause severe damage to your mainboard and/or peripherals. Plug in the AC power cord only after you have carefully checked everything.

To install this mainboard:

1. Locate all the screw holes on the mainboard and the chassis base.
2. Place all the studs or spacers needed on the chassis base and have them tightened.
3. Face the mainboard's I/O ports toward the chassis's rear panel.
4. Line up all the mainboard's screw holes with those studs or spacers on the chassis.
5. Install the mainboard with screws and have them tightened.

To prevent shorting the PCB circuit, please REMOVE the metal studs or spacers if they are already fastened on the chassis base and are without mounting-holes on the mainboard to align with.

2.3 Installation of the CPU and CPU Cooler

Before installing the CPU, please comply with the following conditions:

1. Please make sure that the mainboard supports the CPU.
2. Please take note of the one indented corner of the CPU. If you install the CPU in the wrong direction, the CPU will not insert properly. If this occurs, please change the insert direction of the CPU.
3. Please add an even layer of heat sink paste between the CPU and CPU cooler.
4. Please make sure the CPU cooler is installed on the CPU prior to system use, otherwise overheating and permanent damage of the CPU may occur.
5. Please set the CPU host frequency in accordance with the processor specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the required standards for the peripherals. If you wish to set the frequency beyond the proper specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

2.3.1 Installation of the CPU

1. Unlock the socket by pressing the lever sideways, then lift it up to a 90°.

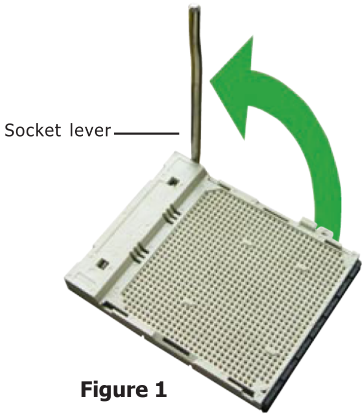


Figure 1

2. Position the CPU above the socket such that the CPU corner with the gold triangle matches the socket corner with a small triangle.
3. Carefully insert the CPU into the socket until it fits place.

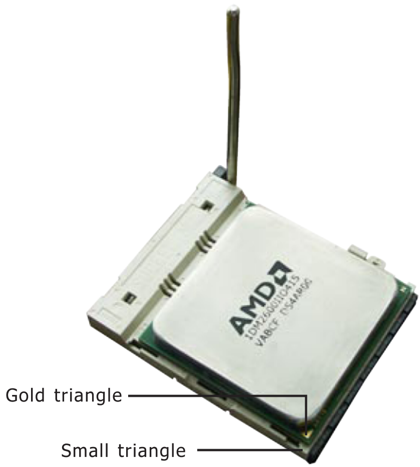


Figure 2

4. When the CPU is in place, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.

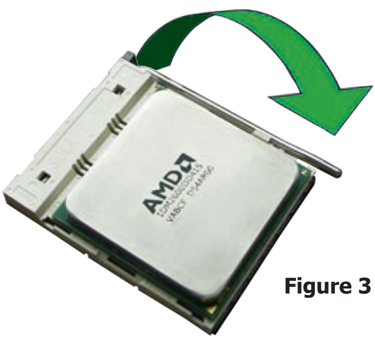


Figure 3

2.3.2 Installation of the CPU Cooler

For proper installation, please kindly refer to the instruction manuals of your CPU Cooler.

2.4 Installation of Memory Modules

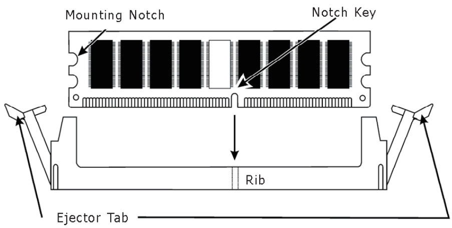
This mainboard provides four 240-pin DDRII (Double Data Rate) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install two identical (the same brand, speed, size and chip-type) memory modules in the DDRII DIMM slots to activate Dual Channel Memory Technology. Otherwise, it will operate at single channel mode.



Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.

To install system memory:

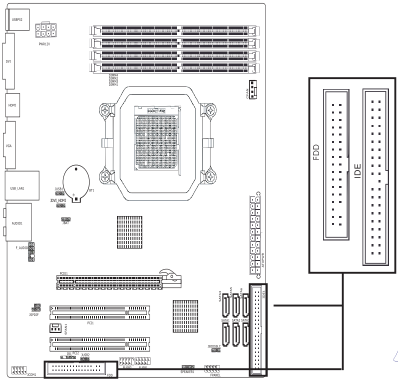
1. Power off the computer and unplug the AC power cord before installing or removing memory modules.
2. Locate the DIMM slot on the board.
3. Hold two edges of the DIMM module carefully, keep away from touching its connectors.
4. Align the notch key on the module with the rib on the slot.



5. Firmly press the module into the slots until the ejector tabs at both sides of the slot automatically snap into the mounting notch. Do not force the DIMM module in with extra force as the DIMM module only fits in one direction.
6. To remove the DIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the DIMM module.

2.5 Connecting Peripheral Devices

2.5.1 Floppy and IDE Disk Drive Connectors



Each of the IDE port connects up to two IDE drives at Ultra ATA 133/100/66/33 mode by one 40-pin, 80-conductor,and 3-connector Ultra ATA/66 ribbon cables.

Connect the single end (blue connector) at the longer length of ribbon cable to the IDE port of this board, the other two ends (gray and black connector) at the shorter length of the ribbon cable to the connectors of your hard drives.

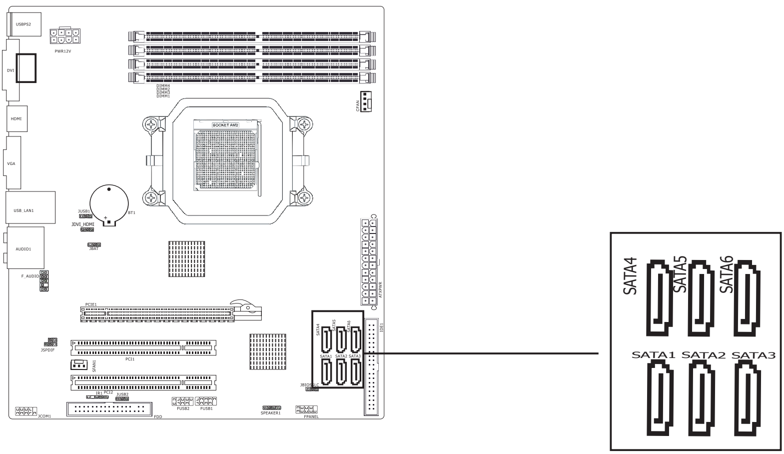
> Make sure to configure the “Master” and “Slave” relation before connecting two drives by one single ribbon cable. The red line on the ribbon cable must be aligned with pin-1 on both the IDE port and the hard-drive connector.

The FDD connector connects up to two floppy drives with a 34-wire, 2-connector floppy cable.Connect the single end at the longer length of ribbon cable to the FDD on the board, the two connectors on the other end to the floppy disk drives connector. Generally you need only one floppy disk drive in your system.

> The red line on the ribbon cable must be aligned with pin-1 on both the FDD port and the floppy connector.

2.5.2 Serial ATA Connectors

Each SATA connector serves as one single channel to connect one SATA device by SATA cable.



2.5.3 PCI and PCI Express slots

Install PCI Express X16 graphics card into slot “PCIE1”.

Install PCI card into slots “PCI1” or “PCI2” .

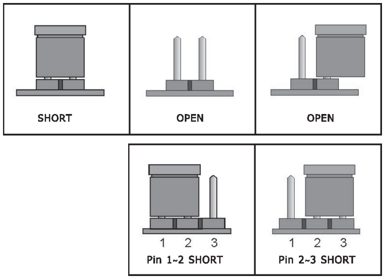
Chapter 3 Jumpers & Headers Setup

3.1 Checking Jumper Settings

- For a 2-pin jumper, plug the jumper cap on both pins will make it CLOSE (SHORT). Remove the jumper cap, or plug it on either pin (reserved for future use) will leave it at OPEN position.

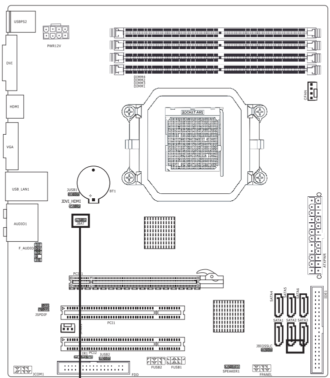
- For 3-pin jumper, pin 1~2 or pin 2~3 can be shorted by plugging the jumper cap in.

  How to identify the PIN1 jumpers?
  Please check the mainboard carefully, the PIN1 is marked by "1" or white thick line.

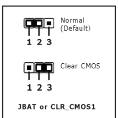


3.2 CMOS Memory Clearing Header

The time to clear the CMOS memory occurs when (a) the CMOS data becomes corrupted, (b) you forgot the supervisor or user password preset in the BIOS menu, (c) you are unable to boot-up the system because the CPU ratio/clock was incorrectly set in the BIOS menu, or (d) whenever there is modification on the CPU or memory modules.
This header uses a jumper cap to clear the CMOS memory and have it reconfigured to the default values stored in BIOS.



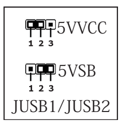
- Pins 1 and 2 shorted (Default): Normal operation.
- Pins 2 and 3 shorted: Clear CMOS memory.



To clear the CMOS memory and load in the default values:
1. Power off the system.
2. Set pin 2 and pin 3 shorted by the jumper cap. Wait for a few seconds. Set the jumper cap back to its default settings --- pin 1 and pin 2 shorted.
3. Power on the system.
4. For incorrect CPU ratio/clock settings in the BIOS, press <Del> key to enter the BIOS setup menu right after powering on system.
5. Set the CPU operating speed back to its default or an appropriate value.
6. Save and exit the BIOS setup menu.

3.3 5V USB Power Jumper(JUSB1/JUSB2)

Pin 1-2 short: 5VVCC
Pin 2-3 short: 5VSB

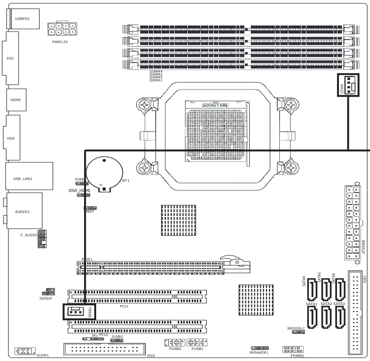


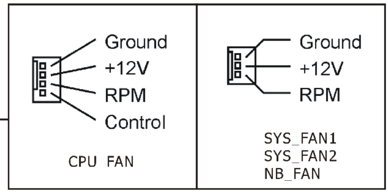
3.4 FAN Power Connectors

These connectors each provide power to the cooling fans installed in your system.

CFAN or CFAN1: CPU Fan Power Connector

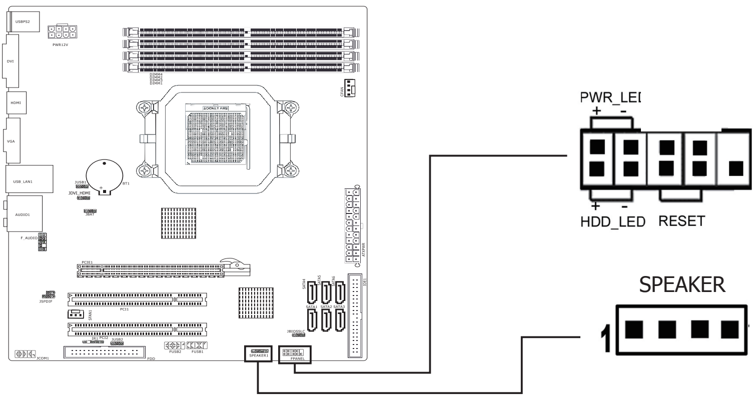
SYSFAN1: System Fan Power Connector





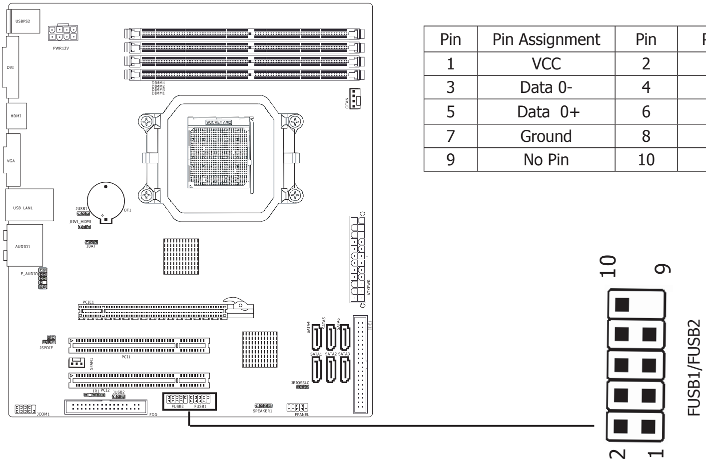
These fan connectors are not jumpers. DO NOT place jumper caps on these connectors.

3.5 Front Panel Switches & Indicators Headers



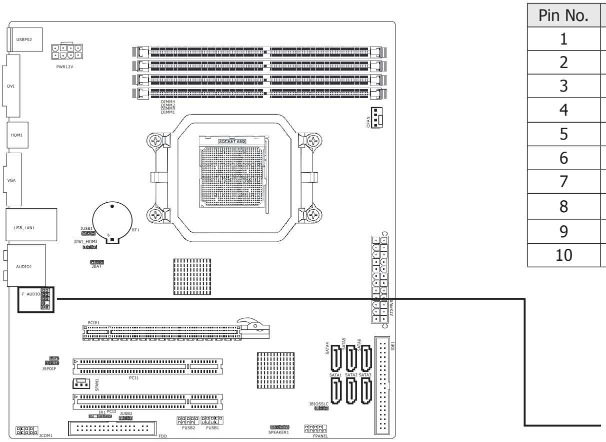
HDD_LED (Hard Driver LED Header)
Connect the HDD LED cable to these PINs, in order to see the HDD status
RESET (Reset Control)
This connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the lift of the system's power supply.
PWR-ON (Power Button)
This connector connects to the case-mounted power switch to power ON/OFF the system.
SPEAKER (Speaker)
This 4-pin connector connects to the case-mounted speaker. You should follow the instruction of the speaker cable.

3.6 Additional USB Port Headers



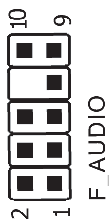
Pin	Pin Assignment	Pin	Pin Assignment
1	VCC	2	VCC
3	Data 0-	4	Data 0-
5	Data 0+	6	Data 0+
7	Ground	8	Ground
9	No Pin	10	NC

3.7 Front Panel Audio Connection Header



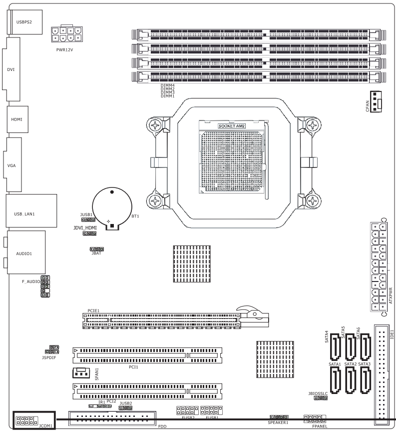
HD Audio:

Pin No.	Definition
1	PORT1L
2	AGND
3	PORT1R
4	NC
5	PORT2R
6	SENSE1
7	SENSE
8	No Pin
9	PORT2L
10	SENSE2

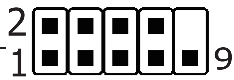


3.8 Serial Port Header (Optional)

This JCOM1 header supports a serial port module.



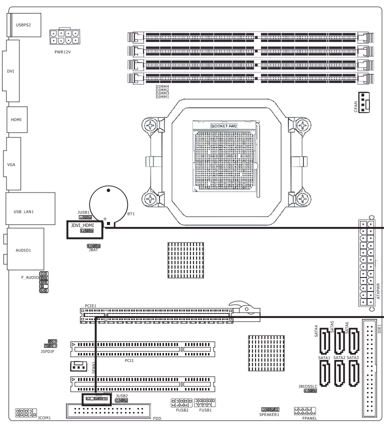
Pin	Pin Assignment	Pin	Pin Assignment
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	CTS	8	RTS
9	RI		



3.9 IR Connection Header & JDVI_HDMI Jumper

Connect the IrDA cable (if available) to this IR connector.

While JVDI_HDMI jumper be shorted #pin 1-2, it will auto detect HDMI or DVI device, but if some DVI or HDMI device cann't be detected, please be shorted #pin 2-3.



JVDI_HDMI Jumper

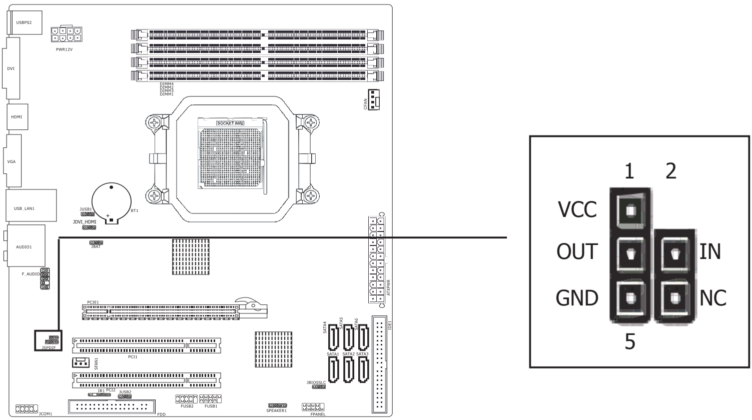
Pin No.	Definition
Pin1-2	Auto
Pin2-3	DVI/HDMI EN



Pin No.	Definition
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX

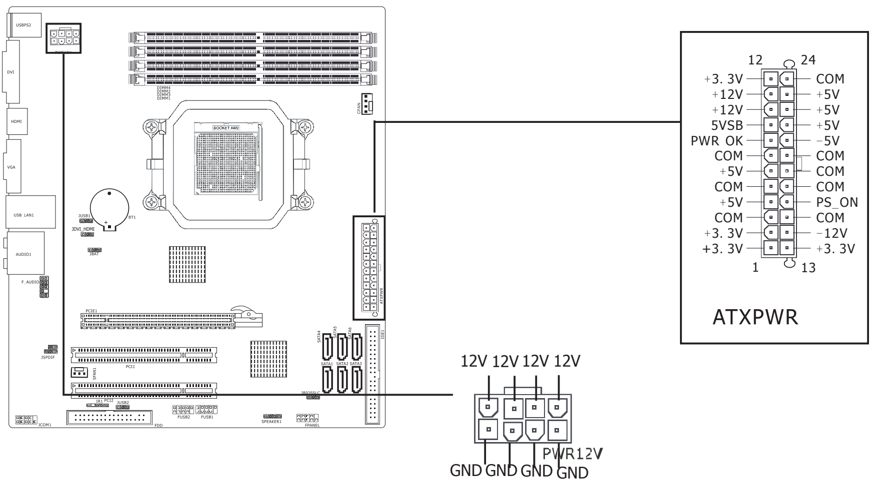
3.10 S/PDIF Output Connection Header **(Optional)**

S/PDIF (Sony/Philips Digital Interface) is a standard audio transfer file format. It is usually found on digital audio equipment such as a DAT (Digital Audio Tape) machine or audio processing device. It allows the transfer of audio from one file to another without the conversion to and from an analog format, which could degrade the signal quality.



3.11 ATX Power Input Connectors

This mainboard provides two power connectors to connect power supplier.



Chapter 4 BIOS Setup Utility

BIOS stands for Basic Input and Output System. It was once called ROM BIOS when it was stored in a Read-Only Memory (ROM) chip. Now manufacturers would like to store BIOS in EEPROM which means Electrically Erasable Programmable Memory. BIOS used in this series of mainboard is stored in EEPROM, and is the first program to run when you turn on your computer.

BIOS performs the following functions:
1. Initializing and testing hardware in your computer (a process called "POST", for Power On Self Test).
2. Loading and running your operating system.
3. Helping your operating system and application programs manage your PC hardware by means of a set of routines called BIOS Run-Time Service.

4.1 About BIOS Setup

BIOS Setup is an interactive BIOS program that you need to run when:
1. Changing the hardware of your system. (For example: installing a new Hard Disk etc.)
2. Modifying the behavior of your computer. (For example: changing the system time or date, or turning special features on or off etc.)
3. Enhancing your computer's behavior. (For example: speeding up performance by turning on shadowing or cache)

4.2 To Run BIOS Setup

First access BIOS setup menu by pressing <F1> key after “POST” is complete (before OS is loaded). After the first BIOS be setupped(or loaded default values) and save, the <DEL> key will be pressed if you will enter BIOS setup menu.

4.3 About CMOS

CMOS is the memory maintained by a battery. CMOS is used to store the BIOS settings you have selected in BIOS Setup. CMOS also maintains the internal clock. Every time you turn on your computer, the BIOS Looks into CMOS for the settings you have selected and configures your computer accordingly. If the battery runs out of power, the CMOS data will be lost and POST will issue a “CMOS invalid” or “CMOS checksum invalid” message. If this happens, you have to replace the battery and check and configure the BIOS Setup for the new start.

4.4 The POST (Power On Self Test)

POST is an acronym for Power On Self Test. This program will test all things the BIOS does before the operating system is started. Each of POST routines is assigned a POST code, a unique number which is sent to I/O port 080h before the routine is executed.

4.5 BIOS Setup — CMOS Setup Utility

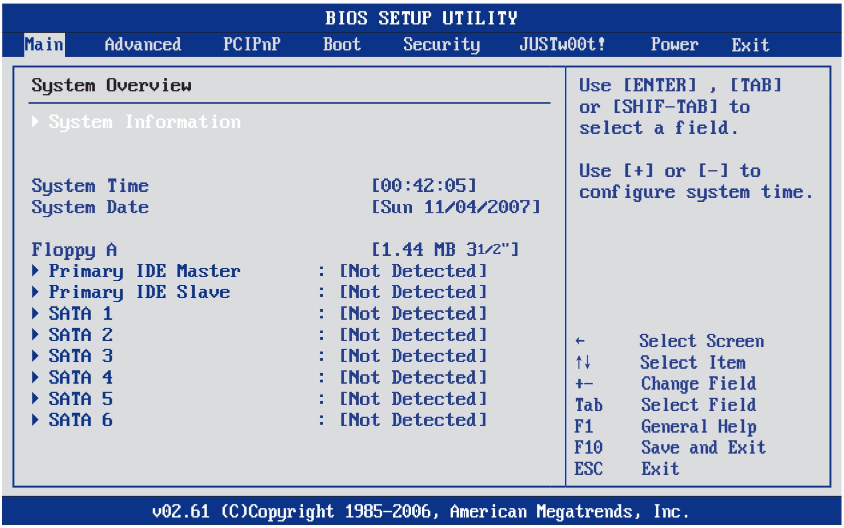
- *In order to increase system stability and performance, our engineering staff is constantly improving the BIOS menu. The BIOS setup screens and descriptions illustrated in this manual are for your reference only, and may not completely match with what you see on your screen.*
- *Do not change the BIOS parameters unless you fully understand its function.*

4.5.1 CMOS Setup Utility

After powering up the system, the BIOS message appears on the screen,when the first time or when CMOS setting wrong, there is following message appears on the screen , but if the first BIOS be setuped(or loaded default values) and save, the <DEL> key will be pressed if you will enter BIOS setup menu.



If this message disappears before you respond, restart the system by pressing <Ctrl> + <Alt>+ <Del> keys, or by pressing the reset button on computer chassis. Only when these two methods should be fail that you restart the system by powering it off and then back on. After pressing <F1> or <Del> key, the main menu appears.



This is the System Overview, The System Time, System Date, Primary IDE information, SATA port information.

- System Information

Please Enter this submenu, this will be display BIOS verison, build date, ID number, also will display CPU type, Speed, count, and Memory Size and so on.

• **System time**

This item sets the time you specify(usually the current time)in the format of [Hour],[Minute]and [Second].

• **System date**

This item sets the date you specify(usually the current date0in the format of [Month],[Date],and [Year].

• **Floppy A**

Allows you to selects the type of floppy disk drive installed in your system. If you do not install a floppy disk drive, set this item to None. Options are: None, 360K/5.25", 1.2M/5.25", 720K/3.5",1.44M/3.5", 2.88M/3.5".

• **Language**

Allows you to selects the current default language used by the BIOS.

▸ **Primary ide Master /Slave**

This item sets the status of auto detection of IDE devices while enterting setup, and BIOS will auto detects the presence of IDE devices.

▸ **SATA Port 1 /2/3/4/5/6**

This item sets the status of auto detection of SATA devices while enterting setup, and BIOS will auto detects the presence of SATA devices.

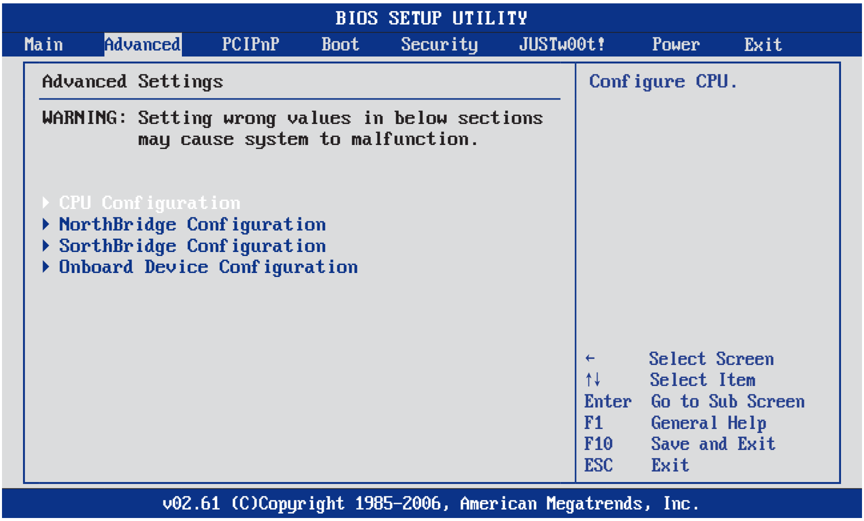
4.5.2 Control Keys

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item.

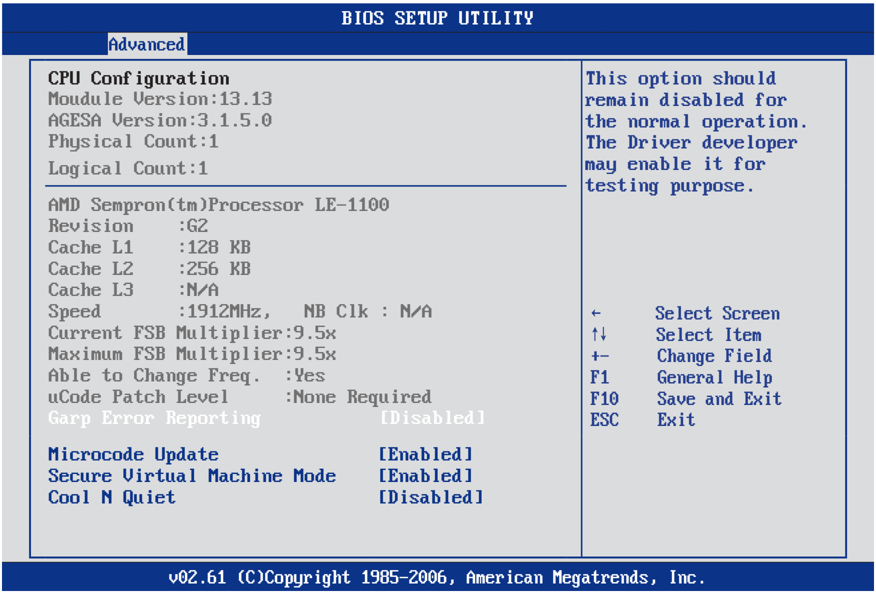
Please check the following table for the function description of each control key.

Control Key(s)	Function Description
← / →	Move cursor left or right to select Screens
↑ / ↓	Move cursor up or down to select items
+/ -/PU/PD	To Change option for the selected items
<Enter>	To bring up the selected screen
<ESC>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<F1>	General help
<F2/F3>	Change Colors
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F7>	Discard Changes
<F8>	Load Failsafe Defaults
<F9>	Load Optimal Defaults
<F10>	Save configuration changes and exit setup

4.5.3 Advanced Setting



This submenu including these configurations, such as CPU, Northbridge, Southbridge, Onboard Device, only CPU Configuration submenu dispay diallog box as follwoing.



This is CPU related parameter and CPU setting.

- CPU Configuration

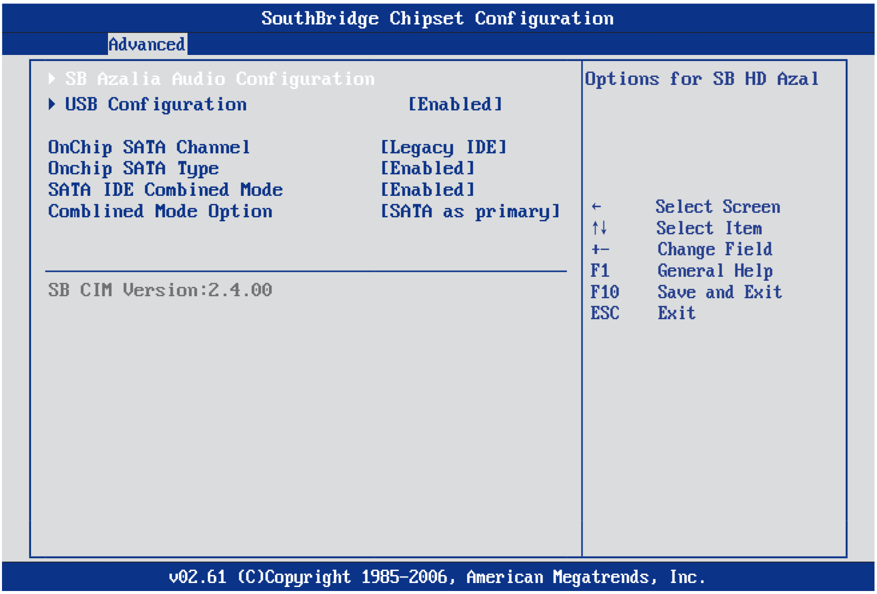
  Click <Press Enter> key to enter its submenu, it will be display configureted CPU information, including Module Version, Manufacturer , CPU type, Frequency, FSB Speed, Cache L1 , Cache L2 and so on.

- **Cool 'n' Quiet**
  Enabled :Lets the AMD Cool'n'Quiet driver dynamically adjust the CPU clock and VIA to reduce heat output from your computer and its power consumption.
  Disabled: Disables this function(Default)

▸ North Bridge Configuration
Click <Press Enter> key to enter its submenu, it will be display north bridge chipset configuration, this item sets the memory remap feature, DRAM frequency, DRAM timing by SPD, memory hole, initate graphic adapter, internal graphics mode select and PEG port selection.

Under this option, there is HDMI function setting for Enabled or Disabled.
NorthBridge Configuration -- >RS780 Configuration -- >Internal Graphics Configuration--> NB Azalia(or HDMI Audio) sets as Enabled or Disabled(Default).

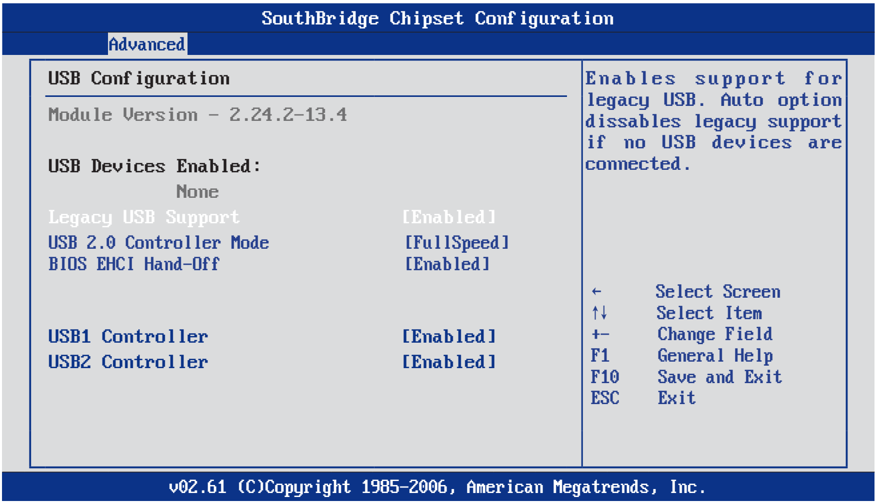
▸ South Bridge Configuration
Click <Press Enter> key to enter its submenu, it will be dispay south bridge chipset configuration, this item sets USB functions, audio controller, PCIE ports selection.



▸ South Bridge Configuration

- **HD Audio Azalia Device**
  Sets the HD Audio has Enabled or Disabled state.
- **HD Onboard PIN Config**
  Enabled : Display the option for Azalia Front Panel in BIOS.
  Disabled: Disabled the option for Azalia Front Panel in BIOS.
- **Azalia Front Panel**
  Sets the sound function for front panel Enabled or Disabled.

▸ USB Configuration



• **Legacy USB Support**

Enabled or Disabled Legacy USB option, and Auto option disables legacy support if no USB devices are connected.

• **USB 2.0 Controller Mode**

Allow you to selects the HiSpeed(480Mbps) or FullSpeed(12Mbps).

• **BIOS EHCI Hand-Off**

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should claim by EHCI driver.

• **USB1 Controller**

Allow you to Enable/Disable USB 1.1 Controller.

• **USB2 Controller**

Allow you to Enable/Disable USB 2.0 Controller.

• **OnChip SATA Type**

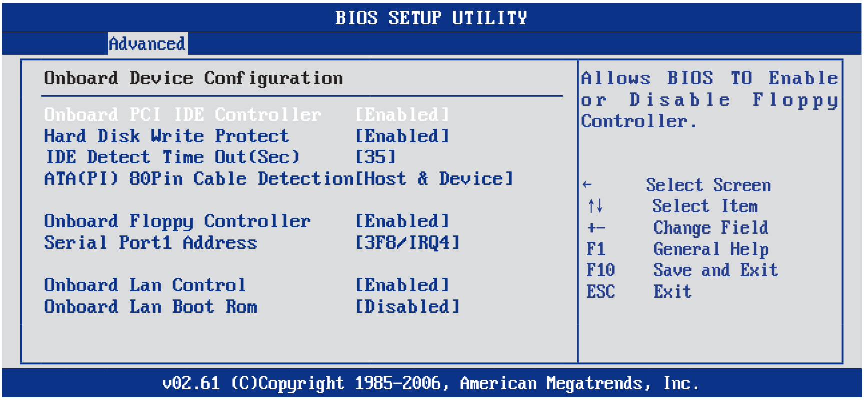
Enables or disables RAID for the SATA controller or configures the SATA controller to AHCI mode.

IDE: Disables RAID for the SATA controller and configures the SATA controller to PATA mode. (Default)

AHCI: Configures the SATA controller to AHCI mode. Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug.

RAID/IDE: Enables RAID for the SATA controller. (The IDE controller still operates in PATA mode)

▸ Onboard Device Configuration

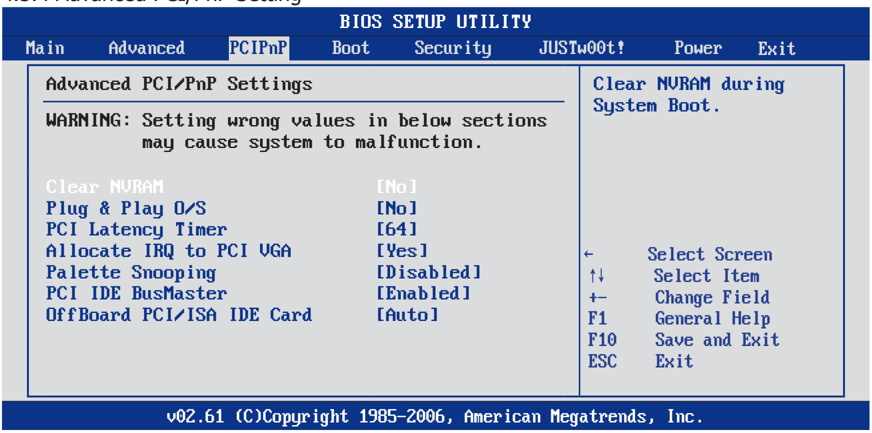


These options allow you to Enabled/Disabled for IDE,Floppy Controller, onboard LAN Control set the addresses for Serial Port1& Port2.

Serial Port 1/2:

Enables or disables the first serial port and specifies its base I/O address and corresponding interrupt. Options are: Auto, 3F8/IRQ4 (default), 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Disabled.

4.5.4 Advanced PCI/PnP Setting



Clear NVRAM

This item for clearing NVRAM during system boot.
Optional:Yes,No

Plug & Play O/S

This item lets the BIOS configure all the devices in the system or lets the operating system configure plug and play (PnP) devices not required for boot if your system has a Plug and Play operating system.
Optional:Yes,No

PCI Latency Timer

This item sets value in units of PCI clocks for PCI device latency timer register.
Optional:32,64,96,128,160,192,224,248

Allocate IRQ to PCI VGA

This item assigns IRQ to PCI VGA card if card requests IRQ or doesn't assign IRQ to PCI VGA card even if card requests an IRQ.

Optional:Yes,No

Palette Snooping

This item informs the PCI devices that an ISA graphics device is installed in the system so the card will function correctly.

Optional:Disabled,Enabled

PCI IDE BusMaster

This item uses PCI busmastering for BIOS reading / writing to IDE derives.

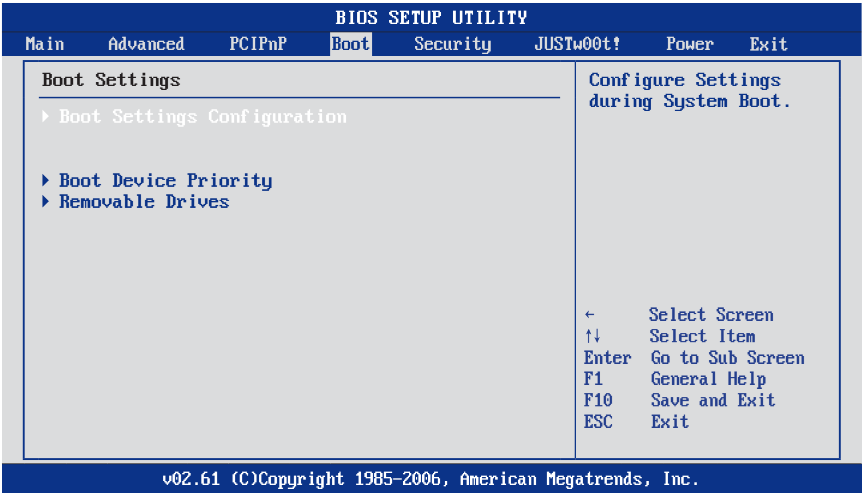
Optional:Disabled,Enabled

OffBoard PCI/ISA IDE Card

This item works for most PCI IDE cards, some PCI IDE cards may require this to be set to the PCI slot number that is holding the card.

Optional:Auto,PCI Slot1~6

4.5.5 Boot Setting



- Boot Settings Configuration

  Click <Press Enter> key to enter its submenu, it will be display boot setting configuration,and the all functions allow BIOS to skip certain tests while booting, whether displays normal POST messages or OEM Logo instead of POST messages through sets the Quit Boot.

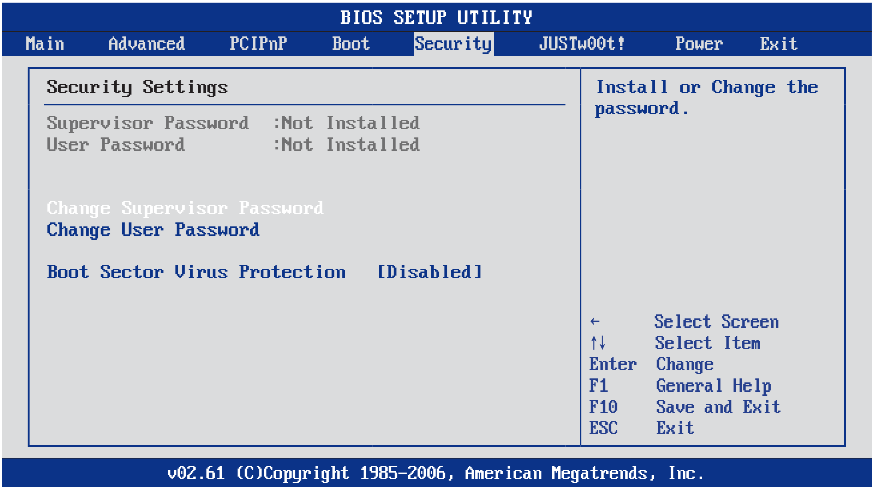
- Boot Device Priority

  Click <Press Enter> key to enter its submenu, it will be display specifies the boot sequence from the available devices.

- Removable Drives

  Click <Press Enter> key to enter its submenu, it will be display specifies the boot device priority sequence from available removable drives.

4.5.6 Security Settings

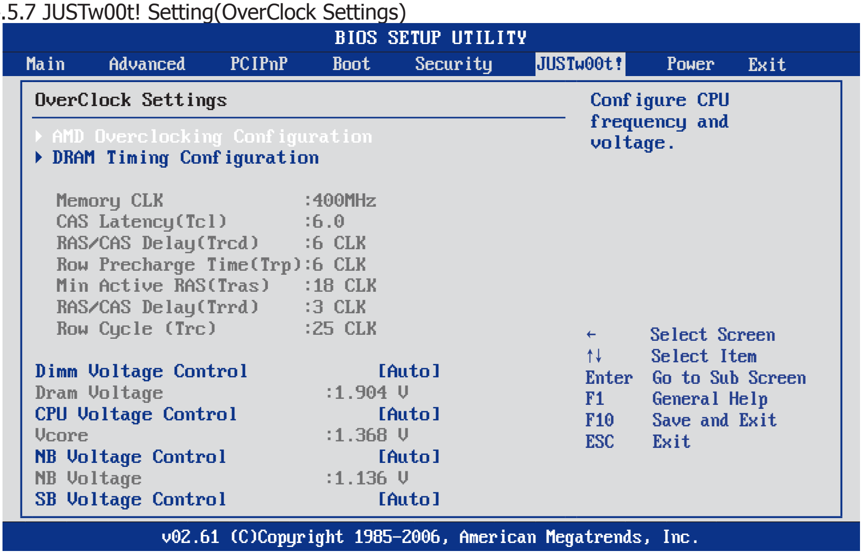


• Change Supervisor Password

This item allows you to Chage Supervisor/User Password, Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked toconfirm the password. Type the password again and press <Enter>.

Note: Don’t forget your password. If you forget the password, you will have to open the computer case and clear all information in the CMOS before you can start up the system. But by doing this, you will have to reset all previously set options.

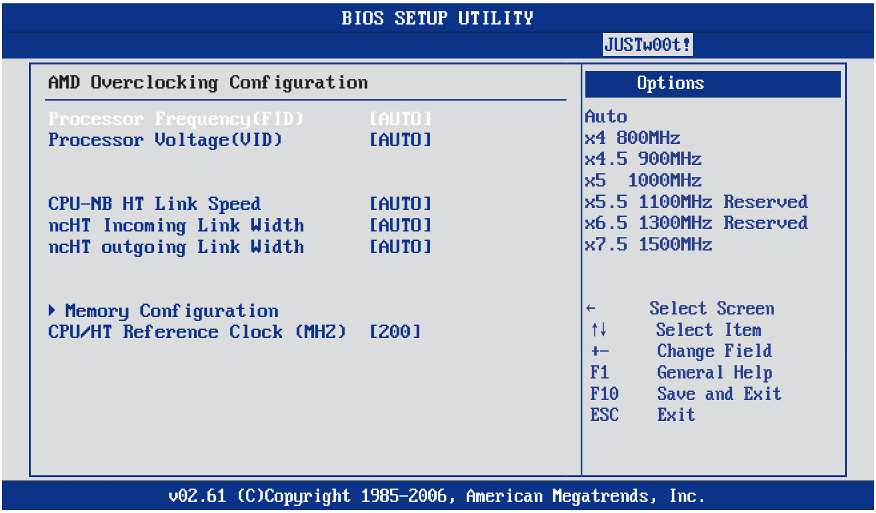
4.5.7 JUSTw00t! Setting(OverClock Settings)



▸ AMD Overclocking Configuration

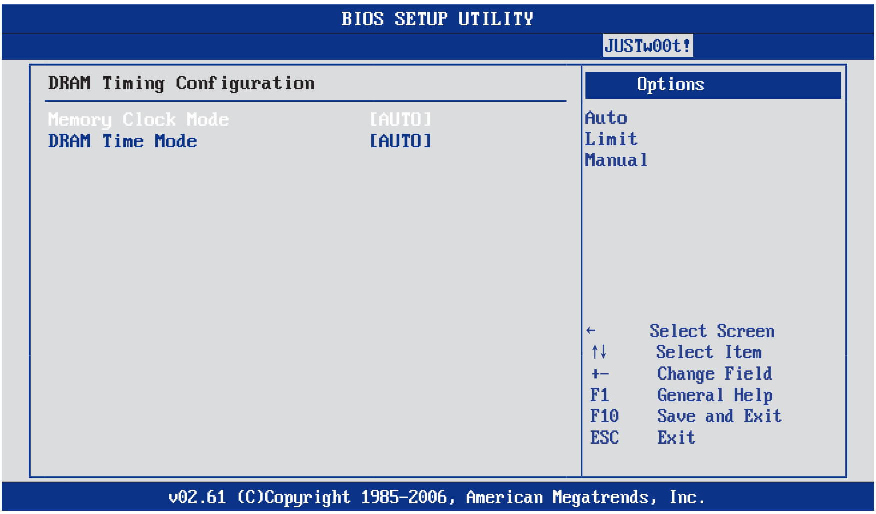
This item allows you to set processor frequency, processor voltage, CPU-NB HT link speed, ncHT incoming link width, ncHT outgoing link width, memory configuration and CPU/HT reference clock.

The option of CPU/HT Reference Clock allows you overclock CPU clock, the Min is 200MHz, the Max is 400, keyin "+"/"-" to select clock.



▸ DRAM Timing Configuration

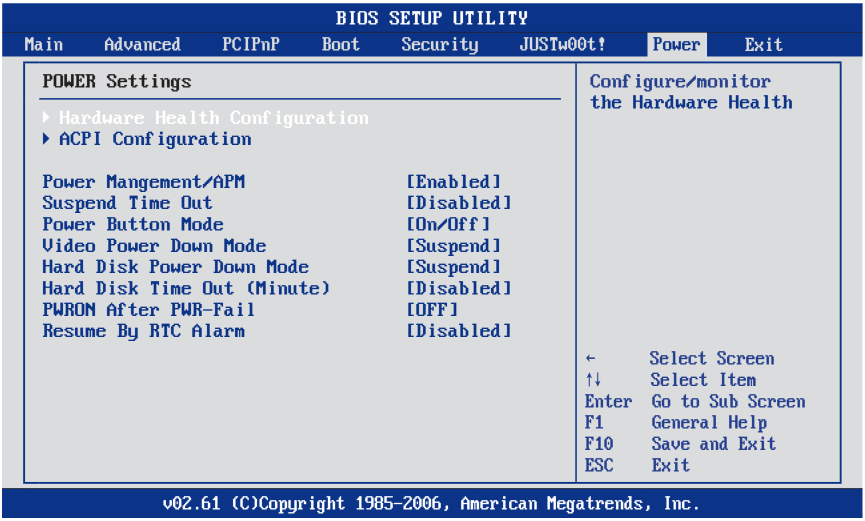
This submenu allows you to set Memory Clock Mode and DRAM Time Mode.



BIOS Write Project

This is for BIOS write function, when this option set as Enabled state, then it won't going on flash bios, or backup BIOS. then it's need to sets disapled(Default).

4.5.8 Power Setting



- Hardware Health Configure

  Click <Press Enter> key to enter its submenu, it will be display hardware health configuration, including System temperature, CPU temperature, FAN speed and all kinds of voltages.

- ACPI Configuration

  These options allow you to manage General/Advanced/Chipset ACPI Configuration, for the Gerneral ACPI Advanced Configuration, Suspend mode there are three mode for selection, S1(POS), S3(STR),and AUTO, the function explains to following:

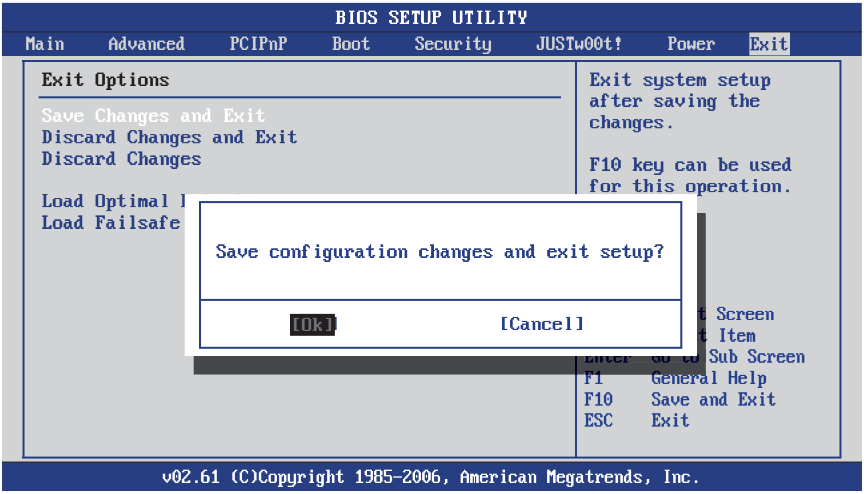
S1(POS): Enables the system to enter the ACPI S1(Power on Suspend)sleep state(default), In S1 sleep state, the system appears suspended any stays in a low power mode The system can be resumed at any time.

S3(STR): Ehables the system to enter the ACPI S3(Suspend to RAM)sleep state. In S3 sleep state. When signaled by a wake-up device or event, the system resumes to its working state exactly where it was left off.

4.5.9 Exit Options

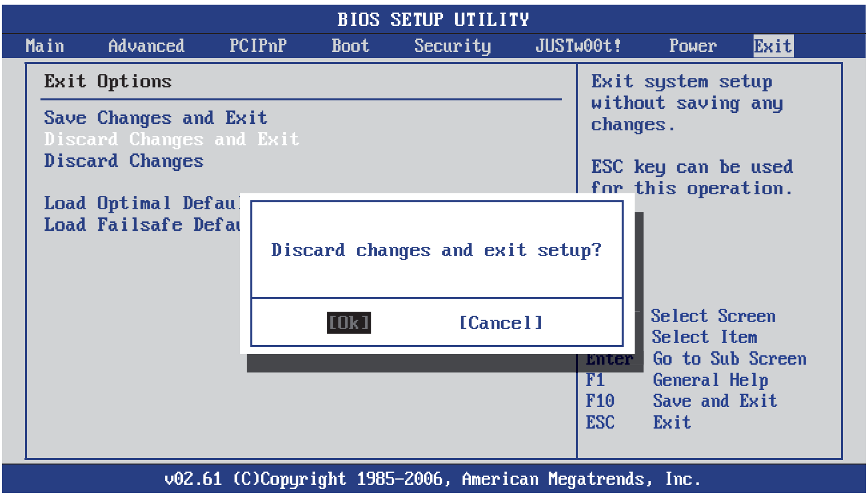
Save Changes and Exit

Highlight this item and select <Ok>,then press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. Or press <Cancel> to return to the main menu.



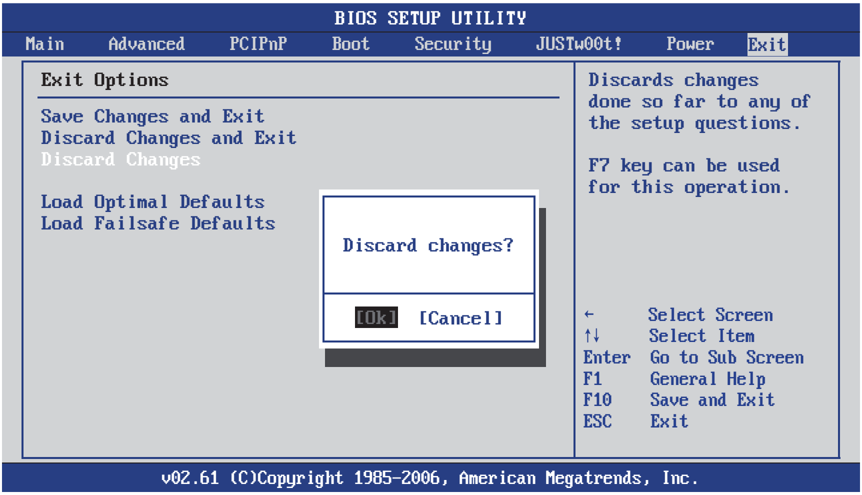
Discard Changes and Exit

Highlight this item and select <Ok>,then press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. Or press <Cancel> to return to the main menu.



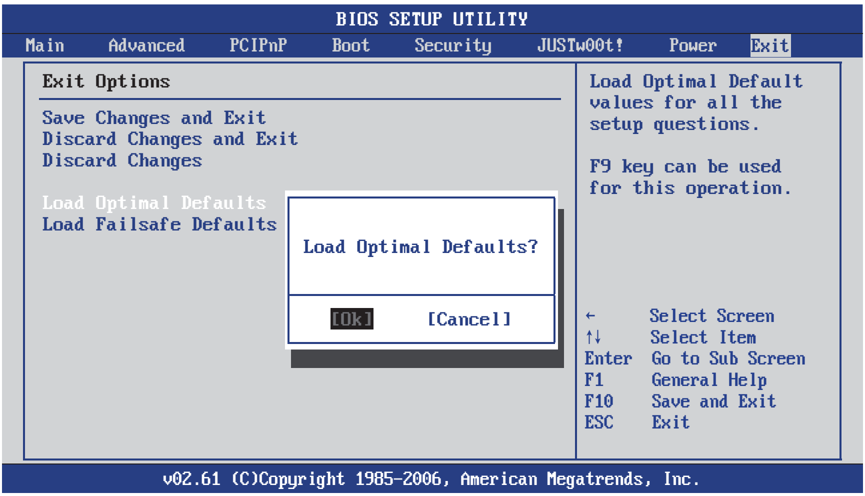
Discard Changes

Sleect <Ok>and press <Enter> to discard changes and exit, or press <Cancel> to return to the main menu.



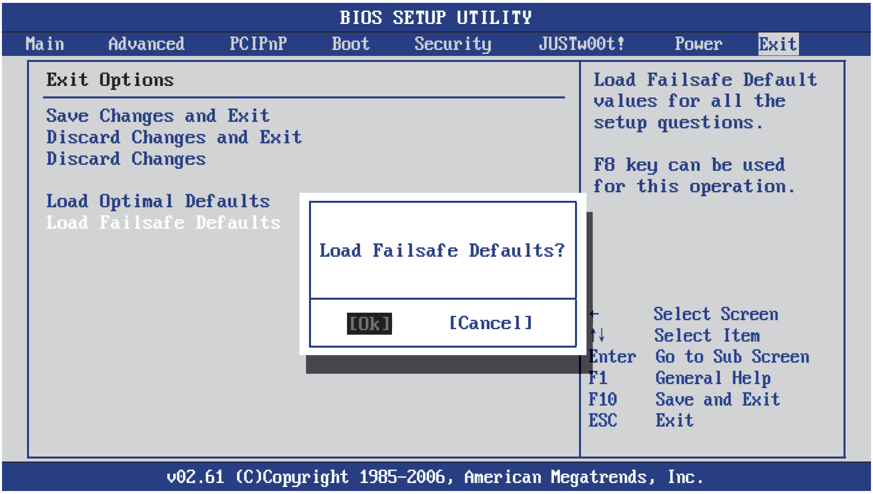
Load Optimized Defaults

This option opens a dialog box that let you install optimized defaults for all appropriate items in the Setup Utility. Select <OK> and then <Enter> to install the defaults. select <Cancel> and then <Enter> to not install the defaults. The optimized defaults place demand on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F9>.



Load Failsafe Defaults

This option opens a dialog box that lets you install fail-safe defaults for all appropriate items in the Setup Utility: Select <Ok> and the <Enter> to install the defaults. Select<Canel> and then <Enter> to not install the defaults. The fail-safe defaults place no great demand on the system and are generally stable. If your system is not functioning correctly, try installing the fail-safe defaults as a first step in getting your system working properly again. If you only want to install fail-safe defaults for a specific option, select and display that option, and then press <F8>.



Chapter 5 Driver Installation

Check your package and there is Driver CD included. This CD consists of all drivers you need. In addition, this CD also include an auto detect software which can tell you which hardware is installed, and which drivers needed so that your system can function properly.
Insert CD into your CD-ROM drive and the menu should appear as below. If the menu does not appear, double-click My Computer / double-click CD-ROM drive or click Start / click Run / type X:\AUTORUN.EXE (assuming X is your CD-ROM drive).



(This picture is only for reference)

From the Main MENU you may make 4 selections:
1. +Mainboard Driver installation Utility: Click to enter the driver installation menu.
2. +Useful Software Utility: Click to enter the utilities installation menu.
3. >Browse CD: Click to browse the contents of this “Driver & Utility CD”.
4. Exit: Click to exit this installation menu.

When you choose **Mainboard Driver installation Utility**, the drivers menu should appear as below:



(This picture is only for reference)

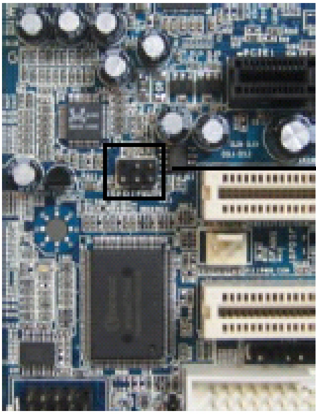
From the Drivers MENU you may make 3 selections:

1. **ATI Chipset Installtion Utility (Such as ATI Graphic Card)**
2. **Onboard LAN Driver**
3. **Realtek Audio Driver**

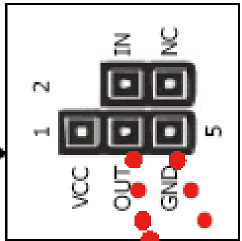
APPENDIX 1

How to connect the S/PDIF coaxial output bracket to the JSPDIF header onboard:

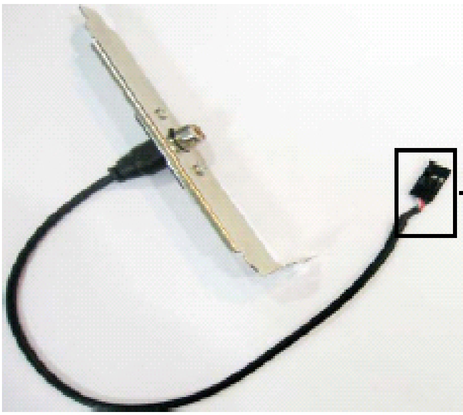
1.) Plug in the S/PDIF cable (Pic. C) onto the JSPDIF header on the board.
2.) The first empty pin with a small triangle mark is to be plugged into Pin 1, and then straight down into Pin 3 & Pin 5, as demonstrated on Pic. B and Pic. D for your easy



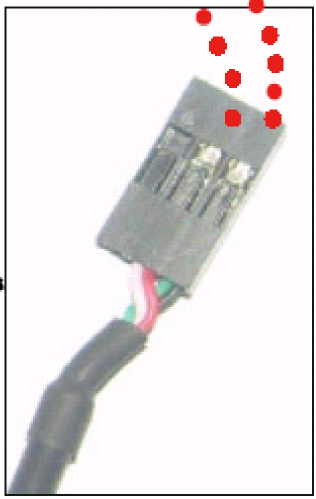
A. 5Pin JSPDIF header



B. JSPDIF Pin Assignment



C. Coaxial S/PDIF Out bracket



D. Cable assignment zoomed in

APPENDIX 2

AMIBIOS Check Point and Code List:

1.Bootblock Initialization Code Checkpoints

The Bootblock initialization code sets up the chipset, memory and other components before system memory is available. The following table describes the type of checkpoints that may occur during the bootblock initialization portion of the BIOS:

Checkpoint	Description
Before D1	Early chipset initialization is done. Early super I/O initialization is done including RTC and keyboard controller. NMI is disabled.
D1	Perform keyboard controller BAT test. Check if waking up from power management suspend state. Save power-on CPUID value in scratch CMOS.
D0	Go to flat mode with 4GB limit and GA20 enabled. Verify the bootblock checksum.
D2	Disable CACHE before memory detection. Execute full memory sizing module. Verify that flat mode is enabled.
D3	If memory sizing module not executed, start memory refresh and do memory sizing in Bootblock code. Do additional chipset initialization. Re-enable CACHE. Verify that flat mode is enabled.
D4	Test base 512KB memory. Adjust policies and cache first 8MB. Set stack.
D5	Bootblock code is copied from ROM to lower system memory and control is given to it. BIOS now executes out of RAM.
D6	Both key sequence and OEM specific method is checked to determine if BIOS recovery is forced. Main BIOS checksum is tested. If BIOS recovery is necessary, control flows to checkpoint E0. See Bootblock Recovery Code Checkpoints section of document for more information.
D7	Restore CPUID value back into register. The Bootblock-Runtime interface module is moved to system memory and control is given to it. Determine whether to execute serial flash.
D8	The Runtime module is uncompressed into memory. CPUID information is stored in memory.
D9	Store the Uncompressed pointer for future use in PMM. Copying Main BIOS into memory. Leaves all RAM below 1MB Read-Write including E000 and F000 shadow areas but closing SMRAM.
DA	Restore CPUID value back into register. Give control to BIOS POST (ExecutePOSTKernel). See POST Code Checkpoints section of document for more information.

2.Bootblock Recovery Code Checkpoints

The Bootblock recovery code gets control when the BIOS determines that a BIOS recovery needs to occur because the user has forced the update or the BIOS checksum is corrupt. The following table describes the type of checkpoints that may occur during the Bootblock recovery portion of the BIOS:

Checkpoint	Description
E0	Initialize the floppy controller in the super I/O. Some interrupt vectors are initialized. DMA controller is initialized. 8259 interrupt controller is initialized. L1 cache is enabled.
E9	Set up floppy controller and data. Attempt to read from floppy.
EA	Enable ATAPI hardware. Attempt to read from ARMD and ATAPI CDROM.
EB	Disable ATAPI hardware. Jump back to checkpoint E9.

Checkpoint	Description
EF	Read error occurred on media. Jump back to checkpoint EB.
E9 or EA	Determine information about root directory of recovery media.
F0	Search for pre-defined recovery file name in root directory.
F1	Recovery file not found.
F2	Start reading FAT table and analyze FAT to find the clusters occupied by the recovery file.
F3	Start reading the recovery file cluster by cluster.
F5	Disable L1 catche
FA	Check the validity of the recovery file configuration to the current configuration of the flash part.
FB	Make flash write enabled through chipset and OEM specific method. Detect proper flash part. Verify that the found flash part size equals the recovery file size.
F4	The recovery file size does not equal the found flash part size.
FC	Erase the flash part.
FD	Program the flash part.
FF	The flash has been updated successfully. Make flash write disabled. Disable ATAPI hardware. Restore CPUID value back into register. Give control to F000 ROM at F000:FFF0h.

3.POST Code Checkpoints

The POST code checkpoints are the largest set of checkpoints during the BIOS pre-boot process. The following table describes the type of checkpoints that may occur during the POST portion of the BIOS:

Checkpoint	Description
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialized CMOS as mentioned in the Kernel Variable "wCMOSFlags."
04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A. Initializes data variables that are based on CMOS setup questions. Initializes both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock ."
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
C0	Early CPU Init Start -- Disable Cache - Init Local APIC
C1	Set up boot strap proccessor Information
C2	Set up boot strap proccessor for POST
C5	Enumerate and set up application proccessors.
C6	Re-enable cache for boot strap proccessor
C7	Early CPU Init Exit
0A	Initializes the 8042 compatible Key Board Controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.

Checkpoint	Description
24	Uncompress and initialize any platform specific BIOS modules.
30	Initialize System Management Interrupt.
2A	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
38	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.
40	Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, … etc.) successfully installed in the system and update the BDA, EBDA…etc.
50	Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7A	Initializes remaining option ROMs.
7C	Generate and write contents of ESCD in NVRam.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.
87	Execute BIOS setup if needed / requested.
8C	Late POST initialization of chipset registers.
8D	Build ACPI tables (if ACPI is supported)
8E	Program the peripheral parameters. Enable/Disable NMI as selected
90	Late POST initialization of system management interrupt.
A0	Check boot password if installed.
A1	Clean-up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module.
A7	Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's.
A8	Prepare CPU for OS boot including final MTRR values.
AA	Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module.
AB	Prepare BBS for Int 19 boot.
AC	End of POST initialization of chipset registers.
B1	Save system context for ACPI.
00	Passes control to OS Loader (typically INT19h).